The dataset used in this Visualization provides the number of confirmed COVID-19 cases and Deaths from March 2020 till July 2021 in Chicago and Illinois. The data is updated everyday by Chicago Human and Health Services and Illinois department of public health.

As part of the project user can see the impact of COVID-19 on different groups. These groups are created based on community, age group, gender, race, and ethnicity in Chicago area. The charts can be used to find which group was affected the most. At what point of time each group had the highest deaths or cases. User will also be able to see the overall impact the impact of this pandemic on Chicago in respect to the overall impact on the state of Illinois. One of the observation a user can make is the trend of the COVID-19 cases and Deaths going high and then post May 2021 started to slowly go down, but in the month of July the cases are starting to rise again in Illinois or in Chicago Asian community has the least number of confirmed cases and In Chicago Latin Community is affected the most during this pandemic.

The Visualization follows an Interactive slide show type of Narrative Structure. The primary user for this visualization is the resident of Chicago who would like to see the progression and impact COVID-19 over the time and current situation. This Visualization provides user a set of scenes to browse through one at a time. Each scene covers a different aspect of the story. In one scene user is provided with number of daily confirmed cases in Chicago over the period, the next scene is covering the daily deaths recorded due to COVID-19 in Chicago for the same period. The last scene gives user the overview of impact of COVID-19 on Chicago with respect to the impact of COVID-19 on the state of Illinois. Scenes 2 and 3 of this Visualization, provides user to choose from the options in the drop-down menu, like Cases and deaths by age Group, Race, Gender, Ethnicity. User can use this selection to interact with the data, manipulate the visualization and dig deep into the data to form their own understanding and learning and message. Each scene shows information around only one context but gives an option to move to next scene or go back to previous scene to see any information about something else. For example, scene 2 gives information around the number of cases in Chicago over a period, user can select an option in the drop-down menu to manipulate the chart, but it will only show the data regarding number of cases for the chosen option. To see the data regarding Deaths the user must go to the next scene and select there.

This visualization follows a magazine style visual structure, each scene in the visualization provides a context which helps user to get familiar with data. Each scene also provides options to user to further drill down and manipulate the visualization to get more information and create their own understanding of the data. Each scene has annotations declared as part of the chart which helps user to get more information around the important points of data. For example, an annotation, provided in the graph, about the vaccination being provided for general people helps user to understand one possible reason in decline of number of cases. This also helps to highlight an important part of the data to user. This is a user directed visualization as the user can choose to move forward in a linear fashion by clicking next page or back page or can go back to home page at any time in the visualization. The user is also provided with an option to navigate directly to the overview page from the home page, which is the last page skipping all the pages in the line. The initial two scenes provide user the opportunity to select from a given set of options and manipulate the graph to get more information and form their understanding. For example, scenes 2 and 3 provides user opportunity to choose to manipulate the graph based on the age group, gender, race, Ethnicity. The overview chart in the end gives the user an overall picture of Chicago’s COVID-19 cases and deaths with respect to the Illinois’s COVID-19 cases and death. In all the scenes Annotation provide more context to the data, for example in the overview chart the annotation provides the context on the efforts made by Government to limit the affect of COVID-19. This helps user to get some more details around the data which is not provided by the data set. Scene1 provides the context around the data set for this visualization and the pages in the subsequent scenes. When given the context about pages it also gives the option to the user to navigate to the page, this helps user to follow their own path to understand the data. Scenes 2 and 3 provides an introduction and context to the chart and data plotted in the chart, for example, the source of data. The drop-down menu is placed right under the heading for the scene, easily to be found by user, urging the user to select an option from the menu. In addition, scene’s introduction also provides information to the user that they can manipulate the chart by selecting options from the menu to answer their questions or to gain more understanding. Each scene in the visualization has buttons which user can select to go to a defined scene, these buttons also provide user what to expect in next scene once they click on it.

The visualization consists of 4 scenes. First scene is an introduction page which gives the information of what the visualization is about and what are the information captured in the upcoming scenes. The second scene consist of total confirmed cases recorded in Chicago since March 2020. This scene consists of a line chart with Month and year on the X axes and number of cases as Y axes. This scene also contains a drop-down list where user can select from the given options. This allows user to interact with the Visualization and manipulate the chart. The third scene consist of total deaths by COVID-19 recorded in Chicago since March 2020. This scene also consists of a line chart with same specification as the chart in the previous scene. This scene also gives user an option to select option from a drop-down list and drill deep into the chart and create their own understanding from the data. The fourth scene is also a line graph which depicts Chicago’s confirmed cases and Deaths due to COVID-19 with respect to the Illinoi’s Cases and Deaths due to COVID-19. In this scene, chart also shows annotations which provides important events happening over the world during the plotted period. These annotation helps user to connect with the world while analyzing the data for Chicago and Illinois’s COVID cases.

In all the scenes the charts are chosen to be of same type, this help users feel comfortable in understanding the charts and be willing to drill down. The charts size, area and position on the screen is also kept the same throughout the Visualization to keep the user engaged and not get confused and lost. This way user becomes familiar to the new scene quickly and able to spend more time understanding the data. The color scheme to depict the cases and death for Chicago stays the same in the last chart as the previous charts to help user able to identify the goal of the chart and understand the message quickly.

The Annotation template in the charts follows the scheme in which we are showing the Date and year of the event and a brief detail about the event. This same annotation template is being followed throughout the visualization, this helps user to easily differentiate between the chart dataset element and extra information. Annotations helps to relay more messaging to user, in this visualization annotations give users more information regarding major events, related to COVID-19, happening in Illinois and Chicago like lockdowns, vaccination start. In addition, annotations are used to provide information on some interesting events happening around the world which are unrelated to COVID-19, this helps user to able to connect to the world outside the pandemic and keeps the interest of the user on the chart. Studies have shown humor can help people interested in the narration. The annotation within a scene stays the same, during the transition from one scene to another the annotations change.

Parameters in this visualization are, Navigation parameters, these parameters help in changing the scene, the next button brings the next scene, the back button brings the previous scene. There is a button to go to home page, which helps user to go back to the beginning of the visualization no matter which scene they are on. Navigation parameters triggers a change the one scene to another which in turns changes the default state of the Visualization. On slides 2 and 3, user has a dropdown selection box. Each one of the selections is a parameter as selecting one will manipulate the chart and show information relevant to the selection. Each of these selections trigger the visualization state to change from the default state to a new state. When user arrives at a given page there is a parameter set which decides what chart will be shown to the user by default. For example, on scene 2, for COVID-19 cases in Chicago, the user is greeted with a chart showing the number of COVID-19 cases among Females whereas when user navigates to the scene 3, for COVID-19 deaths, the user is shown the chart depicting Deaths among Males due to COVID-19. These are different parameters with the default input to the chart for each page, this is the default state of Visualization, when user chooses an option from the drop down list the chart changes hence changing the state of the visualization. On scene 2 and 3 when user selects an option from the drop down list the chart changes, to help user experience change there is a parameter set to make sure the transition between one graph to another in the same scene is smooth and not abrupt. When user transition between any scenes for example scene 2 to scene 3 or scene 2 to 4 or scene 3to 4, the y axes changes as the number of deaths are different than cases. The parameter is set to calculate the new y axes dynamically based on which scene user is on and what kind of dataset is being used. For example, today scene 3, Deaths by COVID in Chicago, has the Y axis depicting highest death till now as 35 but in future if we update the data set to show the highest as 100 the y axes will automatically modify to accommodate the change only for this scene hence changing the default state of Visualization. In the last scene, Visualization shows the COVID related cases and deaths from both Illinois and Chicago. To help user, differentiate different parameters are defined with assigned the color to each type of data, for example green is assigned to Cases in Chicago whereas purple is for Cases in Illinois. In scene 4, showing cases and deaths in both Illinois and Chicago, it uses a different dataset which is a combination of data, published by Chicago Human and Health Services and Illinois department of public health. The parameter is defined to load different dataset based on the scene being visited by the user. For the same scene, scene 4, Visualization also provide user with the ability to mouse over the graph depicting the cases from Chicago and Illinois. When user mouse over the graphs it shows the number of cases and date of the point under the mouse. A parameter is defined to track the mouse’s coordinate and detect whenever it hovers over the graph, whenever the mouse hover over the graph it calls another parameter which will calculate the values plotted at that coordinates in the graph and displays them on the screen hence changing the state to new state. The parameter also detects that the mouse is no longer over the graph, and it can stop displaying the information and the visualization goes back to its original state.

The user can change the scene by selecting or clicking on the options displayed on the screen. On scene 1 visualization provides user with the introduction and context to the Visualization, the introduction will also guide user to select among the path they would like to follow. For example, the text on scene 1 says “Please choose the charts which you would like to visit first or just click next”, user can select to go next and go to Scene 3 or they can select to go to the Overview page first. Based on the selection made by the user it triggers different parameters to help load the desired scene and the change current state of Visualization from scene1 to the new scene. On Scene 2 and 3, chart guides user to select which scene they would like to visit, go next or back or go back to home page. These options are provided as buttons right under the graph for the user to click on. Each selection by user will trigger a set of different parameters to load different scene and change the state of the visualization by changing the scene. Also, Scene 2 and 3 guides user to make selection from the drop-down menu provided. The drop-down menu is placed on the top left corner of the screen right under the heading for the page helping user to conveniently notice. The scenes also have an introduction which invites user to select from the dropdown menu. When user selects an option from the drop-down menu it manipulates the chart and plots a new chart in the same scene in turn again changing the state of the Visualization. Scene 4 has an introduction portion which invites user to hover over the graph for cases, in Illinois and Chicago, to get more information at a given point in time. When user hovers over the graph for cases in Illinois and Chicago the chart is manipulated to display more information for the area under the mouse hence changing the state of Visualization, when the mouse goes out of the graph’s region the displayed data also goes away and the visualization return to its original state. This scene also provides users with options to go back or go to home Page to start over.